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| TRANSMITTAL LETTER TO  | ATTTORNEY'S DOCKET NUMBER CU-4056 WWP   |   |  |  |  |  |  |  |  |
|--|---|---|--|--|--|--|--|--|--|
| DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A SUBMISSION UNDER 35 U.S.C. 371   |   | U.S. APPLICATION NO. (It known, see 37 CFR 1.5) |  |  |  |  |  |  |  |
| INTERNATIONAL APPLICATION NO. PCT/KR2003/001412  | INTERNATIONAL FILING DATE 16 July 2003  | PRIORITY DATE CLAIMED 16 July 2002              |  |  |  |  |  |  |  |
| TITLE OF INVENTION MULTISTAGE ADAPTIVE PARAL   | TITLE OF INVENTION MULTISTAGE ADAPTIVE PARALLEL INTERFERENCE CANCELLER  |   |  |  |  |  |  |  |  |
| APPLICANT(S) FOR DO/EO/US In Kwan HWANG  |   |   |  |  |  |  |  |  |  |
| Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:                                      |   |   |  |  |  |  |  |  |  |
| 1. X This is a FIRST submission of items concerning a submission under 35 U.S.C. 371.  |   |   |  |  |  |  |  |  |  |
| 2. This is a SECOND or SUBSEQUENT  | This is a SECOND or SUBSEQUENT submission of items concerning a submission under 35 U.S.C. 371.               |   |  |  |  |  |  |  |  |
| 3. This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below. |   |   |  |  |  |  |  |  |  |
| 4. X The US has been elected (Article 31).   | The US has been elected (Article 31).   |   |  |  |  |  |  |  |  |
| X A copy of the International Application as filed (35 U.S.C. 371(c)(2))   |   |   |  |  |  |  |  |  |  |
| a. is attached hereto (required only if not communicated by the International Bureau).   |   |   |  |  |  |  |  |  |  |
| b. X has been communicated by  | b. X has been communicated by the International Bureau.   |   |  |  |  |  |  |  |  |
| c is not required, as the appli  | c. is not required, as the application was filed in the United States Receiving Office (RO/US).               |   |  |  |  |  |  |  |  |
| 6. An English language translation of th   | An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).              |   |  |  |  |  |  |  |  |
| a. is attached hereto.   | a. is attached hereto.  |   |  |  |  |  |  |  |  |
| -  |   |   |  |  |  |  |  |  |  |
|  | Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))          |   |  |  |  |  |  |  |  |
| a. are attached hereto (required only if not communicated by the International Bureau).  |   |   |  |  |  |  |  |  |  |
|  | b. have been communicated by the International Bureau.  |   |  |  |  |  |  |  |  |
| (v)  | ਦੀ  |   |  |  |  |  |  |  |  |
| d.  have not been made and   | d. X have not been made and will not be made.   |   |  |  |  |  |  |  |  |
| (C)  | An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).   |   |  |  |  |  |  |  |  |
|  |   |   |  |  |  |  |  |  |  |
| 10. An English language translation of the Article 36 (35 U.S.C. 371(c)(5)).   |   |   |  |  |  |  |  |  |  |
| Items 11 to 20 below concern document(s  | ) or information included:  | ·   |  |  |  |  |  |  |  |
| 11. An Information Disclosure Statement  | under 37 CFR 1.97 and 1.98.   |   |  |  |  |  |  |  |  |
| 12. An assignment document for recording   | ng. A separate cover sheet in compliance with   | n 37 CFR 3.28 and 3.31 is included.             |  |  |  |  |  |  |  |
| 13. A preliminary amendment.   | A preliminary amendment.  |   |  |  |  |  |  |  |  |
| 14. An Application Data Sheet under 37 (   | An Application Data Sheet under 37 CFR 1.76.  |   |  |  |  |  |  |  |  |
| 15. A substitute specification.  | A substitute specification.   |   |  |  |  |  |  |  |  |
| 16. A power of attorney and/or change of   | A power of attorney and/or change of address letter.  |   |  |  |  |  |  |  |  |
| 17. A computer-readable form of the sequ   | A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 37 CFR 1.821- 1.825. |   |  |  |  |  |  |  |  |
| 18. A second copy of the published Interr  | A second copy of the published International Application under 35 U.S.C. 154(d)(4).                           |   |  |  |  |  |  |  |  |
| 19. A second copy of the English language  | A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4). |   |  |  |  |  |  |  |  |
| 20. Other items or information:  | Other items or information:   |   |  |  |  |  |  |  |  |

This collection of information is required by 37 CFR 1.414 and 1.491-1.492. The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 15 minutes to complete, including gathering information, preparing, and submitting the completed form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Page 1 of 2

T12 Rec'd PCT/PTO 1 8 JAN 2005

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| U.S. APPLICA   | TOWNOY (introver), see [                             | Ø 9FR 1.5)                              | INTERNATIONAL AF                        |                      |            | ATTORNEY'S DOC        |              |  |  |
|--|--|---|---|----------------------|------------|-----------------------|--------------|--|--|
|  |  | 044                                     | PCT/KR2003/00                           | 01412                |            | CU-4056 WWP           |              |  |  |
| l  | ring fees are submitted:                             |   |   |                      | 一          |                       | T            |  |  |
| I <u></u>  | ational fee  | ••••••••••••••••••••••••••••••••••••••• | ••••••••••••••••••••••••••••••••••••••• | \$300.00             | \$         | 300.00                | <del> </del> |  |  |
| X b) Examina   | ation fee  | . * * * * * * * * * * * * * * * * * * * |   | \$200.00             | \$         | 200.00                |              |  |  |
| x c) Search f  | fee  |   |   | \$500.00             | \$         | 500.00                |              |  |  |
|  | TOTAL OF ABOVE CA                                    | ALCULATION                              | S =                                     | \$1000.00            | \$         | 1000.00               |              |  |  |
| Additional for   | fee for specification and d                          | drawings filed i                        | in paper over 100 sheets (e             | excluding sequence   | •          |                       | 1            |  |  |
| listing or computer program listing filed in an electronic medium). The fee is \$250 for each additional 50 sheets of paper or fraction thereof.   |  |   |   |                      |            |                       |              |  |  |
| Total Sheets   | Extra sheets   |   | f each additional 50 or fracti          |                      |            |                       |              |  |  |
|  |  |   | (round up to a whole numbe              |                      |            |                       |              |  |  |
| 70 - 100 =   | . O /50 =  |   |   | × \$250.00           | \$         | -                     | <u> </u>     |  |  |
| Surcharge of \$10  | 30 00 for furnishing the c                           | ath or declara                          | ation later than 30 months fr           | mm the earliest      | -          |                       | <del> </del> |  |  |
| claimed priority d   | date (37 CFR 1.492(e)).                              | au or again.                            | tion rater triain oo manan.             | OIII tile cariloc.   | \$         |                       |              |  |  |
| CLAIMS   | NUMBER FII   | LED                                     | NUMBER EXTRA                            | RATE                 | \$         |                       |              |  |  |
| Total claims   | 30   | - 20 =                                  | 10                                      | x \$50.00            | \$         | 500.00                |              |  |  |
| Independent clair  | ims 4  | - 3 =                                   | 1                                       | × \$200.00           | \$         | 200.00                |              |  |  |
| MULTIPLE DEPI  | ENDENT CLAIM(S) (if ap                               | pplicable)                              |   | + \$360.00           | \$         |                       |              |  |  |
|  |  |   | TOTAL OF ABOVE                          |                      | = \$       | 1700.00               |              |  |  |
| X Applicant cl<br>by 1/2.  | laims small entity status.                           | See 37 CFR                              | 1.27. The fees indicated ab             | ove are reduced      | \$         | 850.00                |              |  |  |
|  |  |   |   | SUBTOTAL             | = \$       | 850.00                |              |  |  |
| Processing fee o   | of \$130.00 for furnishing t                         | the English tra                         | anslation later than 30 month           | hs from the earlies  | 1          |                       |              |  |  |
| claimed priority o   | date (37 CFR 1.492(f)).                              |   | TOTAL                                   | +                    | <b>—</b>   |                       |              |  |  |
|  |  |   |   | NATIONAL FEE         | Ť          | 850.00                |              |  |  |
| Fee for recording by an appropriate  | g the enclosed assignmer<br>e cover sheet (37 CFR 3. | nt (37 CFR 1.2<br>.28, 3.31). \$40      | 21(h)). The assignment mus              | st be accompanied    | \$         |                       |              |  |  |
|  |  |   | TOTAL F                                 | EES ENCLOSED         | = \$       | 850.00                | ·            |  |  |
|  | <del></del>  |   |   |                      | Ап         | nount to be           | \$           |  |  |
|  |  |   |   |                      |            | unded:<br>nount to be |              |  |  |
|  |  |   |   |                      |            | arged:                | \$           |  |  |
| a. X A check   | ck in the amount of \$                               | 850.00                                  | to cover the abo                        | ve fees is enclosed  | 4          |                       |              |  |  |
| L  | charge my Deposit Acco                               | ount No.                                | <del></del>                             | \$ to                |            | he chave fore         |              |  |  |
|  | icate copy of this sheet is                          |   | HI IIIO GINOGIA O                       |                      | COVELL     | ne above lees.        |              |  |  |
| c. X The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit t Account No. 12-0400 . A duplicate copy of this sheet is enclosed.                     |  |   |   |                      |            |                       |              |  |  |
| d. Fees are to be charged to a credit card. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. |  |   |   |                      |            |                       |              |  |  |
| NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37) CFR 1.137(a) or (b)) must be filed  |  |   |   |                      |            |                       |              |  |  |
| and granted to re  | restore the International                            | I Application                           | to pending status.                      |                      | 7/         |                       | must be men  |  |  |
| _  | RESPONDENCE TO:                                      |   |   | $\mathcal{X}$        | <b>V</b> , |                       |              |  |  |
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| (022)  | 1300   |   |   |                      | TION       | UMBER _               |              |  |  |
|  |  |   |   | registrat<br>January | , 18,      | 2005                  |              |  |  |